

MANUAL OF THE STRUCTURE AND BRIDGE DIVISION

PART 6

CAST-IN-PLACE CONCRETE SLAB STANDARDS



**VIRGINIA DEPARTMENT OF
TRANSPORTATION**

VDOTGOVERNANCE DOCUMENT

VDOT Manual of the Structure and Bridge Division

Part 6 - Cast in Place Concrete Slab Standards

OWNING DIVISION Structure and Bridge

DATE OF ISSUANCE: 4/28/2023

PART 6 CAST-IN-PLACE CONCRETE SLAB STANDARDS

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| INSTR | -1 General Instructions..... | 28Apr2023 |
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RELEASE (REVISION) LETTERS

TITLE SHEET AND QUANTITIES

| | | |
|---------|--|-----------|
| *CS-TS | -1 Title Sheet..... | 25Jan2013 |
| | -2 Notes to Designer | 25Jan2013 |
| *CS-EST | -1 Estimated Quantities and Index of Sheets..... | 25Jan2013 |
| | -2 Notes to Designer | 25Jan2013 |

ABUTMENTS

| | | |
|------------|--|-----------|
| *CS-A15-0 | -1 0° Skew – Fill Slope 1 ½ : 1 | 14Jun2010 |
| | -2 Notes to Designer | 11Jul2008 |
| | -3 Notes to Designer | 11Jul2008 |
| *CS-A15-30 | -1 30° Skew – Fill Slope 1 ½ : 1 | 14Jun2010 |
| | -2 Notes to Designer | 11Jul2008 |
| | -3 Notes to Designer | 11Jul2008 |
| *CS-A15-45 | -1 45° Skew – Fill Slope 1 ½ : 1 | 14Jun2010 |
| | -2 Notes to Designer | 11Jul2008 |
| | -3 Notes to Designer | 11Jul2008 |
| *CS-A2-0 | -1 0° Skew – Fill Slope 2 : 1 | 14Jun2010 |
| | -2 Notes to Designer | 11Jul2008 |
| | -3 Notes to Designer | 11Jul2008 |

*Indicates 11 x 17 sheet; all others are 8 ½ x 11.

**VOLUME V – PART 6
CAST-IN-PLACE CONCRETE SLAB STANDARDS**

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| FILE NO. | TITLE | DATE |
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| ABUTMENTS (cont'd) | | |
| *CS-A2-30 | -1 30° Skew – Fill Slope 2 : 1 | 14Jun2010 |
| | -2 Notes to Designer | 11Jul2008 |
| | -3 Notes to Designer | 11Jul2008 |
| *CS-A2-45 | -1 45° Skew – Fill Slope 2 : 1 | 14Jun2010 |
| | -2 Notes to Designer | 11Jul2008 |
| | -3 Notes to Designer | 11Jul2008 |
| ABUTMENTS ON PILES | | |
| *CS-APL15-0 | -1 0° Skew - Fill Slope 1 ½ : 1 | 14Jun2010 |
| | -2 Notes to Designer | 11Jul2008 |
| | -3 Notes to Designer | 11Jul2008 |
| *CS-APL15-30 | -1 30° Skew - Fill Slope 1 ½ : 1 | 14Jun2010 |
| | -2 Notes to Designer | 11Jul2008 |
| | -3 Notes to Designer | 11Jul2008 |
| *CS-APL15-45 | -1 45° Skew - Fill Slope 1 ½ : 1 | 14Jun2010 |
| | -2 Notes to Designer | 11Jul2008 |
| | -3 Notes to Designer | 11Jul2008 |
| *CS-APL2-0 | -1 0° Skew - Fill Slope 2 : 1 | 14Jun2010 |
| | -2 Notes to Designer | 11Jul2008 |
| | -3 Notes to Designer | 11Jul2008 |
| *CS-APL2-30 | -1 30° Skew - Fill Slope 2 : 1 | 14Jun2010 |
| | -2 Notes to Designer | 11Jul2008 |
| | -3 Notes to Designer | 11Jul2008 |
| *CS-APL2-45 | -1 45° Skew - Fill Slope 2 : 1 | 14Jun2010 |
| | -2 Notes to Designer | 11Jul2008 |
| | -3 Notes to Designer | 11Jul2008 |

*Indicates 11 x 17 sheet; all others are 8 ½ x 11.

PART 6 CAST-IN-PLACE CONCRETE SLAB STANDARDS

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| FILE NO. | TITLE | PIERS | DATE |
|------------------------------|-------|----------------------------------|-----------|
| *CS-P-0 | -1 | 0° Skew | 14Jun2010 |
| | -2 | Notes to Designer | 11Jul2008 |
| | -3 | Notes to Designer | 11Jul2008 |
| *CS-P-30 | -1 | 30° Skew | 14Jun2010 |
| | -2 | Notes to Designer | 11Jul2008 |
| | -3 | Notes to Designer | 11Jul2008 |
| *CS-P-45 | -1 | 45° Skew | 14Jun2010 |
| | -2 | Notes to Designer | 11Jul2008 |
| | -3 | Notes to Designer | 11Jul2008 |
| PIERS ON PILES | | | |
| *CS-PP-0 | -1 | 0° Skew | 14Jun2010 |
| | -2 | Notes to Designer | 11Jul2008 |
| | -3 | Notes to Designer | 11Jul2008 |
| *CS-PP-30 | -1 | 30° Skew | 14Jun2010 |
| | -2 | Notes to Designer | 11Jul2008 |
| | -3 | Notes to Designer | 11Jul2008 |
| *CS-PP-45 | -1 | 45° Skew | 14Jun2010 |
| | -2 | Notes to Designer | 11Jul2008 |
| | -3 | Notes to Designer | 11Jul2008 |
| CONCRETE SLAB DETAILS | | | |
| *CS-10-20-0 | -1 | 10' – 20' Spans - 0° Skew | 25Jan2013 |
| | -2 | Notes to Designer | 25Jan2013 |
| | -3 | Notes to Designer | 25Jan2013 |
| *CS-10-20-30 | -1 | 10' – 20' Spans - 30° Skew | 25Jan2013 |
| | -2 | Notes to Designer | 25Jan2013 |
| | -3 | Notes to Designer | 25Jan2013 |
| *CS-10-20-45 | -1 | 10' – 20' Spans - 45° Skew | 25Jan2013 |
| | -2 | Notes to Designer | 25Jan2013 |
| | -3 | Notes to Designer | 25Jan2013 |

*Indicates 11 x 17 sheet; all others are 8 ½ x 11.

CAST-IN-PLACE CONCRETE SLAB STANDARDS PART 6 TABLE OF CONTENTS

PART 6
DATE: 25Jan2013
SHEET 3 of 6
FILE NO. TOC-3

PART 6 CAST-IN-PLACE CONCRETE SLAB STANDARDS

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| FILE NO. | | TITLE | DATE |
|---------------------------------------|----|----------------------------------|-----------|
| CONCRETE SLAB DETAILS (cont'd) | | | |
| *CS-22-32-0 | -1 | 22' – 32' Spans - 0° Skew | 25Jan2013 |
| | -2 | Notes to Designer | 25Jan2013 |
| *CS-22-32-30 | -1 | 22' – 32' Spans - 30° Skew | 25Jan2013 |
| | -2 | Notes to Designer | 25Jan2013 |
| *CS-22-32-45 | -1 | 22' – 32' Spans - 45° Skew | 25Jan2013 |
| | -2 | Notes to Designer | 25Jan2013 |

PARAPETS/RAILINGS

| | | | |
|---------|----|--|-----------|
| *CS-P1 | -1 | Cast-in-Place Concrete Parapet (F-Shape) | 25Jan2013 |
| | -2 | Notes to Designer | 25Jan2013 |
| *CS-P2 | -1 | Cast-in-Place Concrete Parapet (F-Shape) | 14Jun2010 |
| | -2 | Notes to Designer | 11Jul2008 |
| *CS-P3 | -1 | Terminals Walls | 25Jan2013 |
| | -2 | Notes to Designer | 25Jan2013 |
| *CS-CR1 | -1 | Cast-in-Place Concrete Parapet (32" Kansas Corral) | 25Jan2013 |
| | -2 | Notes to Designer | 25Jan2013 |
| *CS-CR2 | -1 | Cast-in-Place Concrete Parapet (32" Kansas Corral) | 14Jun2010 |
| | -2 | Notes to Designer | 11Jul2008 |
| *CS-GR | -1 | Railing (Texas T-6) | 14Jun2010 |
| | -2 | Notes to Designer | 11Jul2008 |

*Indicates 11 x 17 sheet; all others are 8 ½ x 11.

PART 6 CAST-IN-PLACE CONCRETE SLAB STANDARDS

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| FILE NO. | TITLE | DATE |
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CELLS FOR CAST-IN-PLACE CONCRETE SLAB STANDARDS

| | | | |
|------------|-----|----------------------|-----------|
| CSCCELLIND | -1 | Index of Cells | 11Jul2008 |
| CSCCELLIND | -2 | Index of Cells | 11Jul2008 |
| CSCCELLS | -1 | Cells | 11Jul2008 |
| CSCCELLS | -2 | Cells | 11Jul2008 |
| CSCCELLS | -3 | Cells | 11Jul2008 |
| CSCCELLS | -4 | Cells | 11Jul2008 |
| CSCCELLS | -5 | Cells | 11Jul2008 |
| CSCCELLS | -6 | Cells | 11Jul2008 |
| CSCCELLS | -7 | Cells | 11Jul2008 |
| CSCCELLS | -8 | Cells | 11Jul2008 |
| CSCCELLS | -9 | Cells | 11Jul2008 |
| CSCCELLS | -10 | Cells | 11Jul2008 |
| CSCCELLS | -11 | Cells | 11Jul2008 |
| CSCCELLS | -12 | Cells | 11Jul2008 |
| CSCCELLS | -13 | Cells | 11Jul2008 |
| CSCCELLS | -14 | Cells | 11Jul2008 |
| CSCCELLS | -15 | Cells | 11Jul2008 |
| CSCCELLS | -16 | Cells | 11Jul2008 |
| CSCCELLS | -17 | Cells | 11Jul2008 |
| CSCCELLS | -18 | Cells | 11Jul2008 |
| CSCCELLS | -19 | Cells | 11Jul2008 |
| CSCCELLS | -20 | Cells | 11Jul2008 |
| CSCCELLS | -21 | Cells | 11Jul2008 |
| CSCCELLS | -22 | Cells | 11Jul2008 |
| CSCCELLS | -23 | Cells | 11Jul2008 |
| CSCCELLS | -24 | Cells | 11Jul2008 |
| CSCCELLS | -25 | Cells | 11Jul2008 |
| CSCCELLS | -26 | Cells | 11Jul2008 |
| CSCCELLS | -27 | Cells | 11Jul2008 |
| CSCCELLS | -28 | Cells | 11Jul2008 |
| CSCCELLS | -29 | Cells | 11Jul2008 |
| CSCCELLS | -30 | Cells | 11Jul2008 |
| CSCCELLS | -31 | Cells | 11Jul2008 |
| CSCCELLS | -32 | Cells | 11Jul2008 |

*Indicates 11 x 17 sheet; all others are 8 ½ x 11.

**PART 6
CAST-IN-PLACE CONCRETE SLAB STANDARDS**

TABLE OF CONTENTS (cont'd)

| FILE NO. | TITLE | DATE |
|---|--------------------------------------|-------------|
| CELLS FOR CAST-IN-PLACE CONCRETE SLAB STANDARDS (cont'd) | | |
| CSCCELLS | -33 Cells | 11Jul2008 |
| CSCCELLS | -34 Cells | 11Jul2008 |
| CSCCELLS | -35 Cells | 11Jul2008 |
| CSCCELLS | -36 Cells | 11Jul2008 |
| CSCCELLS | -37 Cells | 11Jul2008 |
| CSCCELLS | -38 Cells | 11Jul2008 |
| CSCCELLS | -39 Cells | 11Jul2008 |
| CSCCELLS | -40 Cells | 11Jul2008 |
| CSCCELLS | -CEL Microstation cell library | 11Jul2008 |

*Indicates 11 x 17 sheet; all others are 8 ½ x 11.

MANUAL OF THE STRUCTURE AND BRIDGE DIVISION

PART 6 CAST-IN-PLACE CONCRETE SLAB SPANS

Part 6 includes standards for cast-in-place concrete slab spans; abutments on spread footings and piles; piers on spread footings and piles; and parapet and railing details to allow the designer to produce a set of standard plans.

Please note that these standards are limited to the following:

| | |
|----------------------|---|
| Design: | AASHTO Standard Specifications for Highway Bridges, 16 th Edition, including 1997 and 1998 Interims and VDOT Modifications. AASHTO LRFD Bridge Design Specifications: Designer is required to check current LRFD Specifications and VDOT Modifications (see current IIM-S&B-80) for adequacy. |
| Capacity: | HS20-44 Loading and alternate military loading (Standards are currently designed in accordance with this loading) HL-93 (use with LRFD Specifications) |
| Span Type: | Simple C-I-P Concrete Slab Spans (single or multiple spans) |
| Span Length: | 10 feet to 32 feet (end-to-end) |
| Capacity: | HS20-44 Loading and alternate military loading |
| Approach Fill Slope: | 1½ : 1 or 2 : 1 |
| Skews: | 0°, 30° or 45° (right or left) |
| Parapets/Railings: | C-I-P Concrete Parapet (F-Shape) or Railing (Texas T-6) or C-I-P Concrete Railing (32" Kansas Corral) |
| Abutments/Piers: | 4 feet to 14 feet height (H) |
| Foundations: | Spread footings: 2.5 tsf minimum Piles: 20 tons minimum |

Refer to NOTES TO DESIGNER for specific comments on each standard sheet.

For CS-TS, completion of the project block, title block and lower left corner shall be in accordance with the requirements of Section Nos. 02.02, 02.04 and 02.05 of Part 2 of this manual and as specified herein. Completion of the project block, title block and lower left corner shall be in accordance with the requirements of File Nos. 04.04-1 thru -2 of Part 2 of this manual and as specified herein.

If a standard sheet is modified by the designer, the letters "MOD." (without quotes) shall be added behind the standard designation in the lower left portion of the border, e.g., PCBT-29S MOD. Completing items on the standard that are indicated in the NOTES TO DESIGNER are not considered to be modifications. Minor modifications do not require approval (except for those proposed by Concessionaire/Design-Builder). See Part 1, Section Pre.02 of this manual for definition of minor modifications and modifications not considered minor.

Modifications not considered minor require approval. See Part 1, Section Pre.02 for the required approval format and approval authority.

CAST-IN-PLACE CONCRETE SLAB SPANS GENERAL INSTRUCTIONS

PART 6
DATE: 28Apr2023
SHEET 1 of 5
FILE NO. INSTR-1

MANUAL OF THE STRUCTURE AND BRIDGE DIVISION

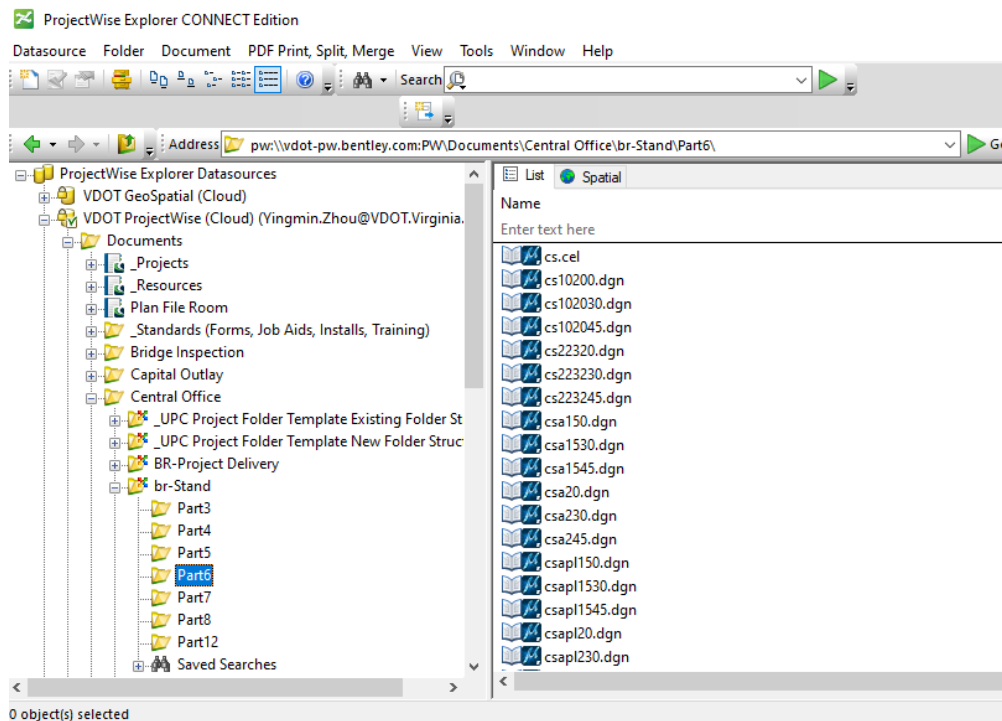
PART 6 CAST-IN-PLACE CONCRETE SLAB SPANS

In general, in the title block (lower right hand corner of sheet) Designed, Drawn and Checked are blank and need to be filled in with the appropriate initials. For standard sheets without any design or detailing requirements, Designed, Drawn and Checked are filled in with "S&B DIV." If the design or details are modified, these fields should be filled in with initials as appropriate.

The standard description in the title block shall be replaced with the appropriate structural unit designation (i.e., ABUTMENTS, PIER(S), SUPERSTRUCTURE, etc.). Likewise, the assigned project plan number shall replace the standard designation in the Plan No. block.

The CADD standard sheets are located in **ProjectWise** (see below). The **CADD** file name for the standard sheet corresponds with the file number (name of standard sheet) as listed in the Table of Contents (minus the dash). For example, standard CS-TS is **file** csts.dgn.

A cell library (cs.cel) is included with the standards to allow the designer to modify/replace details on the standard sheets. The CSECELLS-series sheets included herein depict the cells found in the cell library along with the name of the cell, an image of the cell, a description of the cell and the origin of cell. The origin of cell is indicated by a star ★. To attach the cell library, use the pull down menu in MicroStation under ELEMENT – CELLS and select FILE to get a drop-down listing of available cell libraries.



CAST-IN-PLACE CONCRETE SLAB SPANS GENERAL INSTRUCTIONS

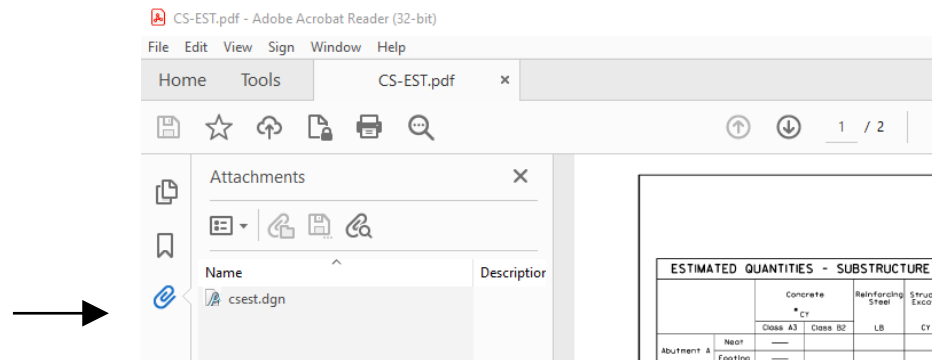
PART 6
DATE: 28Apr2023
SHEET 2 of 5
FILE NO. INSTR-2


MANUAL OF THE STRUCTURE AND BRIDGE DIVISION

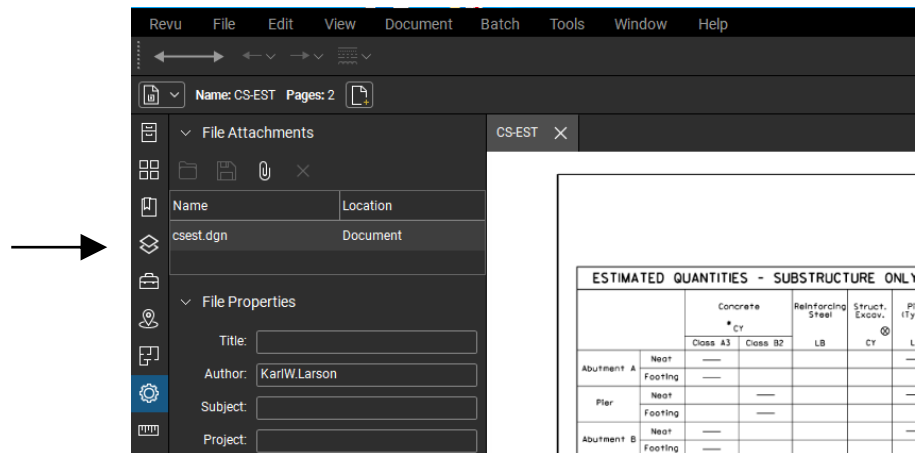
PART 6 CAST-IN-PLACE CONCRETE SLAB SPANS

The MicroStation DGN file is attached to the PDF file for each standard. To access the DGN, save the PDF to a local computer and then open the PDF.

If opening the PDF with Adobe, the DGN attachment is in the upper left corner under Attachments.



If opening the PDF with Bluebeam, click on the Properties icon . The DGN attachment is shown on the upper left corner.



The complete manual in one PDF file with no links may be accessed with the link below.

[Full manual no links](#)

CAST-IN-PLACE CONCRETE SLAB SPANS GENERAL INSTRUCTIONS

PART 6
DATE: 28Apr2023
SHEET 3 of 5
FILE NO. INSTR-3

CAST-IN-PLACE CONCRETE SLAB SPANS

PLAN ASSEMBLY

For a complete plan assembly the following standard sheets will be required:

0° SKEW

| | |
|------------|--|
| CS-TS | Title sheet ((Required for every structure)) |
| CS-EST | Estimated Quantities and Index of sheets ((Required for every structure)) |
| CS-A15-0 | Abutments ((Required for spread footing and approach fill slopes are 1 ½ : 1)) |
| CS-A2-0 | Abutments ((Required for spread footing and approach fill slopes are 2 : 1)) |
| CS-APL15-0 | Abutments ((Required for pile footing and approach fill slopes are 1 ½ : 1)) |
| CS-APL2-0 | Abutments ((Required for pile footing and approach fill slopes are 2 : 1)) |
| CS-P-0 | Piers ((Required for more then one span and spread footing)) |
| CS-PP-0 | Piers on piles ((Required for more then one span and pile footing)) |

| | |
|-------------------------|--|
| CS-10-20-0 | ((Based on span length and type of superstructure, pick the appropriate slab detail drawing.)) |
| CS-22-32-0 | |
| CS-22V-32V-0 | |

| | | |
|--------|-------------------------------------|--|
| CS-P1 | Concrete parapet (F-Shape)- sheet 1 | ((Based on railing type selected include the appropriate drawings.)) |
| CS-P2 | Concrete parapet (F-Shape)- sheet 2 | |
| CS-P3 | Concrete parapet (F-Shape)- sheet 3 | |
| CS-CR1 | 32" Kansas Corral Railing – sheet 1 | |
| CS-CR2 | 32" Kansas Corral Railing – sheet 2 | |
| CS-GR | Railing (Texas T-6) | |

30° SKEW

| | |
|-------------|--|
| CS-TS | Title sheet ((Required for every structure)) |
| CS-EST | Estimated Quantities and Index of sheets ((Required for every structure)) |
| CS-A15-30 | Abutments ((Required for spread footing and approach fill slopes are 1 ½ : 1)) |
| CS-A2-30 | Abutments ((Required for spread footing and approach fill slopes are 2 : 1)) |
| CS-APL15-30 | Abutments ((Required for pile footing and approach fill slopes are 1 ½ : 1)) |
| CS-APL2-30 | Abutments ((Required for pile footing and approach fill slopes are 2 : 1)) |
| CS-P-30 | Piers ((Required for more then one span and spread footing)) |
| CS-PP-30 | Piers on piles ((Required for more then one span and pile footing)) |

| | |
|--------------------------|--|
| CS-10-20-30 | ((Based on span length and type of superstructure, pick the appropriate slab detail drawing.)) |
| CS-22-32-30 | |
| CS-22V-32V-30 | |

| | | |
|--------|-------------------------------------|--|
| CS-P1 | Concrete parapet (F-Shape)- sheet 1 | ((Based on railing type selected include the appropriate drawings.)) |
| CS-P2 | Concrete parapet (F-Shape)- sheet 2 | |
| CS-P3 | Concrete parapet (F-Shape)- sheet 3 | |
| CS-CR1 | 32" Kansas Corral Railing – sheet 1 | |
| CS-CR2 | 32" Kansas Corral Railing – sheet 2 | |
| CS-GR | Railing (Texas T-6) | |

CAST-IN-PLACE CONCRETE SLAB SPANS GENERAL INSTRUCTIONS

PART 6
DATE: 30Aug2012
SHEET 4 of 5
FILE NO. INSTR-4

CAST-IN-PLACE CONCRETE SLAB SPANS

PLAN ASSEMBLY

45° SKEW

| | |
|-------------|--|
| CS-TS | Title sheet ((Required for every structure)) |
| CS-EST | Estimated Quantities and Index of sheets ((Required for every structure)) |
| CS-A15-45 | Abutments ((Required for spread footing and approach fill slopes are 1 ½ : 1)) |
| CS-A2-45 | Abutments ((Required for spread footing and approach fill slopes are 2 : 1)) |
| CS-APL15-45 | Abutments ((Required for pile footing and approach fill slopes are 1 ½ : 1)) |
| CS-APL2-45 | Abutments ((Required for pile footing and approach fill slopes are 2 : 1)) |
| CS-P-45 | Piers ((Required for more then one span and spread footing)) |
| CS-PP-45 | Piers on piles ((Required for more then one span and pile footing)) |

| | |
|--------------------------|--|
| CS-10-20-45 | ((Based on span length and type of superstructure, pick the appropriate slab detail drawing.)) |
| CS-22-32-45 | |
| CS-22V-32V-45 | |

| | | |
|---------|-------------------------------------|--|
| CS-P1 | Concrete parapet (F-Shape)- sheet 1 | ((Based on railing type selected include the appropriate drawings.)) |
| CS-P2 | Concrete parapet (F-Shape)- sheet 2 | |
| CS-P3 | Concrete parapet (F-Shape)- sheet 3 | |
| CS-CR1 | 32" Kansas Corral Railing – sheet 1 | |
| CS-CR-2 | 32" Kansas Corral Railing – sheet 2 | |
| CS-GR | Railing (Texas T-6) | |



COMMONWEALTH of VIRGINIA

DEPARTMENT OF TRANSPORTATION
1401 EAST BROAD STREET
RICHMOND, 23219-2000

Stephen Brich
COMMISSIONER

April 28, 2023

SUBJECT: Manual of the Structure and Bridge Division – Part 6
Cast-in-Place Concrete Slab Standards

MEMORANDUM

TO: Holders of Manual

VOIDED:

None

NEW ISSUES:

None

REVISIONS:

| <u>File Number</u> | <u>Description of change(s)</u> |
|--------------------|--|
| INSTR-1 | Re-worded the approval requirements for modifications to standards so that it refers to Part 1 instead of repeating Part 1. |
| INSTR-2 | Revised 3 rd paragraph to refer to ProjectWise instead of Falcon. Added a screenshot from ProjectWise. |
| INSTR-3 | Moved contents from -5 and -6 to -3. Revised instructions for accessing dgn files attached to pdf files. Deleted instructions for printing and eliminated INSTR-6. |

Junyi Meng, P.E.
Assistant State Structure and Bridge Engineer

For: Gregory L. Henion, P.E.
State Structure and Bridge Engineer



COMMONWEALTH of VIRGINIA

DEPARTMENT OF TRANSPORTATION
1401 EAST BROAD STREET
RICHMOND, 23219-2000

Charles A. Kilpatrick, P.E.
COMMISSIONER

March 10, 2015

SUBJECT: Manual of the Structure and Bridge Division – Part 6
Cast-in-Place Concrete Slab Standards

MEMORANDUM

TO: Holders of Manual

VOIDED:

None

NEW ISSUES:

None

REVISIONS:

| <u>File Number</u> | <u>Description of change(s)</u> |
|--------------------|---|
| TOC-1 | Revised dates. |
| INSTR-1 and -2 | Updated modification requirements and manual references. Moved some content to second sheet. |

RETAIN THIS MEMO IN FRONT OF INDEX TO PART 6

/original signed/
Prasad Nallapaneni, P.E.
Assistant State Structure and Bridge Engineer

For: Kendal R. Walus, P.E.
State Structure and Bridge Engineer



COMMONWEALTH of VIRGINIA

DEPARTMENT OF TRANSPORTATION
1401 EAST BROAD STREET
RICHMOND, 23219-2000

Gregory A. Whirley
COMMISSIONER

January 25, 2013

SUBJECT: Manual of the Structure and Bridge Division
Volume V – Part 6
Cast-in-Place Concrete Slab Standards

MEMORANDUM

TO: Holders of Volume V – Part 6: Cast-in-Place Concrete Slab Standards

VOIDED:

None

NEW ISSUES:

| <u>File Number</u> | <u>Description of change(s)</u> |
|--------------------|---------------------------------|
|--------------------|---------------------------------|

REVISIONS:

| <u>File Number</u> | <u>Description of change(s)</u> |
|--------------------|---------------------------------|
|--------------------|---------------------------------|

| | |
|------------------|------------------------------------|
| TOC-1, -3 and -4 | Revised date of applicable sheets. |
|------------------|------------------------------------|

REVISIONS (continued):

| <u>File Number</u> | <u>Description of change(s)</u> |
|--|--|
| CS-TS-1 | GENERAL NOTES: Replaced reinforcing steel notes with “Insert applicable reinforcing steel note(s).” |
| CS-TS-2 | GENERAL NOTES: Added a note for selection of applicable reinforcing steel note(s). |
| CS-EST-1 | ESTIMATED QUANTITIES – SUPERSTRUCTURE ONLY: Added “Class” to Corrosion Resistant Reinforcing Steel. |
| CS-EST-2 | ESTIMATED QUANTITIES: Replaced “type” with “Class I, II or III.” |
| CS-10-20-0-1, CS-10-20-30-1, CS-10-20-45-1, CS-22-32-0-1, CS-22-32-30-1 and CS-22-32-45-1 | Notes: Added “Class ...” to Corrosion Resistant Reinforcing Steel. |
| CS-10-20-0-2, CS-10-20-30-2 and CS-10-20-45-2 | ESTIMATED QUANTITIES: Deleted “Epoxy Coated” from reinforcing steel. |
| CS-10-20-0-3, CS-10-20-30-3 and CS-10-20-45-3 | NOTES: Replaced “type” with “Class I, II or III.” |
| CS-22-32-0-2, CS-22-32-30-2 and CS-22-32-45-2 | ESTIMATED QUANTITIES: Deleted “Epoxy Coated” from reinforcing steel; NOTES: replaced “type” with “Class I, II or III.” |
| CS-P1-1 | Notes: Added “Class ...” to Corrosion Resistant Reinforcing Steel; REINFORCING STEEL SCHEDULE: revised the dimensions and length of reinforcing bar RV0502; SECTION A-A; added 2 in. dimension from reinforcing bar to face of curb. |
| CS-P1-2 | NOTES to DESIGNER: Deleted second note and replaced “type” with “Class I, II or III.” |

REVISIONS (continued):

| <u>File Number</u> | <u>Description of change(s)</u> |
|--------------------|---|
| CS-P3-1 | Notes: Added “Class ...” to Corrosion Resistant Reinforcing Steel; REINFORCING STEEL SCHEDULE: revised the dimensions and length of reinforcing bar RV0502. |
| CS-P3-2 | NOTES: Replaced “type” with “Class I, II or III.” |
| CS-CR1-1 | Notes: Added “Class ...” to Corrosion Resistant Reinforcing Steel. |
| CS-CR1-2 | NOTES: Replaced “type” with “Class I, II or III.” |

RETAIN THIS MEMO IN FRONT OF INDEX TO VOLUME V – PART 6

/original signed/
Julius F. J. Völgyi, Jr., P.E.
Assistant State Structure and Bridge Engineer

For: Kendal R. Walus, P.E.
State Structure and Bridge Engineer



COMMONWEALTH of VIRGINIA

DEPARTMENT OF TRANSPORTATION
1401 EAST BROAD STREET
RICHMOND, 23219-2000

Gregory A. Whirley
COMMISSIONER

August 30, 2012

SUBJECT: Manual of the Structure and Bridge Division
Volume V – Part 6
Cast-in-Place Concrete Slab Spans

MEMORANDUM

TO: Holders of Volume V – Part 6: Cast-in-Place Concrete Slab Spans

The revision is intended to clarify modifications to standards. Design waivers/exceptions are required when changes to the standards are made.

VOIDED:

None

NEW ISSUES:

None

REVISIONS:

| <u>File Number</u> | <u>Description of change(s)</u> |
|--------------------|--|
| TOC-1 | Revised date of sheet; added additional page, INSTR-2, and moved contents next page. |
| TOC-2 | Revised date of sheet; added contents from previous page. |
| INSTR-1 | Added instructions for completing the title sheet; revised modification policy; moved last three paragraphs to new page. |
| INSTR-2 | Added paragraphs from previous page. |
| INSTR-3 thru -5 | Revised page numbers. |

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COMMONWEALTH of VIRGINIA

DEPARTMENT OF TRANSPORTATION
1401 EAST BROAD STREET
RICHMOND, 23219-2000

Gregory A. Whirley
COMMISSIONER

March 26, 2012

SUBJECT: Manual of the Structure and Bridge Division
Volume V – Part 6
Cast in Place Concrete Slab Standards

MEMORANDUM

TO: Holders of Volume V – Part 6: Cast in Place Concrete Slab Standards

VOIDED:

| <u>File Number</u> | <u>Description of change(s)</u> |
|--|--|
| CS-22V-32V-0 CS-22V-32V-30 CS-22V-32V-45 | Standard sheet (DGN) and NOTES TO DESIGNER (-1 and -2) are VOIDED as there is a possible conflict with the standards and the current AASHTO LRFD Bridge design Specifications. |

NEW ISSUES:

| <u>File Number</u> | <u>Description of change(s)</u> |
|--------------------|---------------------------------|
|--------------------|---------------------------------|

None

REVISED:

| <u>File Number</u> | <u>Description of change(s)</u> |
|--------------------|---------------------------------|
|--------------------|---------------------------------|

| | |
|-------|--|
| TOC-1 | Updated for Specifications and Capacity; Designer is required to check adequacy to meet LRFD Bridge Design Specifications. |
|-------|--|

REVISED (continued):

| <u>File Number</u> | <u>Description of change(s)</u> |
|---------------------|---|
| TOC-4 | Deleted cast-in-place voided concrete slab standards. |
| INSTR-1 | Revised the Specifications and Design Loading in instructions for title sheet. |
| INSTR-2 and INSTR-3 | Lined through CS-22V-0, CS-22V-30 and CS-22V-45. |
| CS-TS | Revised the Specifications and Design Loading in General Notes. |
| CS-P3 | Revised distance to bolts in Section C-C and the width of concrete support in Section B-B. |
| CS-CR1 | Revised distance to bolts in View A-A and the width of concrete support in Section B-B. Added a note for dimension "d" and a standard reference in notes. |

RETAIN THIS MEMO IN FRONT OF INDEX TO VOLUME V – PART 6

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COMMONWEALTH of VIRGINIA

DEPARTMENT OF TRANSPORTATION

1401 EAST BROAD STREET
RICHMOND, 23219-2000

Gregory A. Whirley
Acting COMMISSIONER

June 14, 2010

SUBJECT: Manual of the Structure and Bridge Division
Volume V – Part 6
Cast-in-Place Concrete Slab Standards

MEMORANDUM

TO: Holders of Volume V – Part 6: Cast-in-Place Concrete Standards

VOIDED:

| <u>File Number</u> | <u>Description of change(s)</u> |
|--------------------|---------------------------------|
|--------------------|---------------------------------|

None

NEW ISSUES:

| <u>File Number</u> | <u>Description of change(s)</u> |
|--------------------|---------------------------------|
|--------------------|---------------------------------|

None

REVISIONS:

Note: For all standards, the block with FHWA Region 3 and block in the upper right corner for Special Provisions/Copied Notes has been deleted . The copyright date has been changed to 2010.

RETAIN THIS MEMO IN FRONT OF INDEX TO VOLUME V – PART 6

/original signed/
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For: Kendal R. Walus, P.E.
State Structure and Bridge Engineer



COMMONWEALTH of VIRGINIA

DEPARTMENT OF TRANSPORTATION

1401 EAST BROAD STREET
RICHMOND, 23219-2000

David S. Ekern, P.E.
COMMISSIONER

January 7, 2010

SUBJECT: Manual of the Structure and Bridge Division
Volume V – Part 6
Cast-in-Place Concrete Slab Standards

MEMORANDUM

TO: Holders of Volume V – Part 6: Cast-in-Place Concrete Slab Standards

VOIDED STANDARDS:

None

NEW ISSUES:

| <u>File Number</u> | <u>Description of changes(s)</u> |
|---|---|
| CS-10-20-0-3, CS-10-20-30-3, and CS-10-20-45-3 | Added instructions for the designer to specify the type of CRR. |

REVISIONS:

| <u>File Number</u> | <u>Description of changes(s)</u> |
|---|---|
| TOC-1, TOC-3 and TOC-4 | Revised date. |
| CS-TS | Revised the reinforcing steel note to call for corrosion resistant reinforcing steel (CRR). |
| CS-EST | Revised the reinforcing steel bid item to call for corrosion resistant reinforcing steel (CRR). |
| CS-EST-2 | Added instructions for the designer to specify the type of CRR. |
| CS-10-20-0, CS-10-20-30, and CS-10-20-45 | Revised the reinforcing steel note to call for corrosion resistant reinforcing steel (CRR). |

REVISIONS (cont'd):

| <u>File Number</u> | <u>Description of changes(s)</u> |
|--|---|
| CS-10-20-0-2, CS-10-20-30-2, and CS-10-20-45-2 | Revised date. |
| CS-22-32-0, CS-22-32-30, and CS-22-32-45 | Revised the reinforcing steel note to call for corrosion resistant reinforcing steel (CRR). |
| CS-22-32-0-2, CS-22-32-30-2, and CS-22-32-45-2 | Added instructions for the designer to specify the type of CRR. |
| CS-22V-32V-0, CS-22V-32V-30 , and CS-22V-32V-45 | Revised the reinforcing steel note to call for corrosion resistant reinforcing steel (CRR). |
| CS-22V-32V-0-2, CS-22V-32V-30-2, and CS-22V-32V-45-2 | Added instructions for the designer to specify the type of CRR. |
| CS-P1, CS-P3, and CS-CR1 | Revised the reinforcing steel note to call for corrosion resistant reinforcing steel (CRR). |
| CS-P1-2, CS-P3-2, and CS-CR1-2 | Added instructions for the designer to specify the type of CRR. |

RETAIN THIS MEMO IN FRONT OF INDEX TO VOLUME V – PART 6

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COMMONWEALTH of VIRGINIA

DEPARTMENT OF TRANSPORTATION

1401 EAST BROAD STREET
RICHMOND, 23219-2000

David S. Ekern, P.E.
COMMISSIONER

May 29, 2009

SUBJECT: Manual of the Structure and Bridge Division
Volume V – Part 6
Cast-in-Place Concrete Slab Spans

MEMORANDUM

TO: Holders of Volume V – Part 6: Cast-in-Place Concrete Slab Spans

NOTE: Effective with the December Advertisement, Standards shall be sealed and signed in accordance with Volume V – Part 2, File No. 01.16.1 thru 01.16.7.

VOIDED STANDARDS:

None

NEW ISSUES:

None

REVISIONS:

| <u>File Number</u> | <u>Description of changes(s)</u> |
|---------------------|---|
| All standard sheets | All standard sheets have been revised to reflect the border for sealing and signing of plans. |
| CS-P-0-1 | Minor drafting correction. |
| CS-P-30-1 | Minor drafting correction. |
| CS-P-45-1 | Minor drafting correction. |
| CS-PP-0-1 | Minor drafting correction. |
| CS-PP-30-1 | Minor drafting correction. |
| CS-PP-45-1 | Minor drafting correction. |

REVISIONS:

| <u>File Number</u> | <u>Description of changes(s)</u> |
|--------------------|--|
| CS-P1-1 | Modified terminal section and minor drafting correction. |
| CS-CR-1-1 | Modified terminal section and minor drafting correction. |
| CS-CR-2-1 | Modified terminal section. |
| CS-P1-1 | Minor drafting correction. |
| CS-P2-1 | Modified terminal section. |
| CS-P3-1 | Modified terminal section and minor drafting correction. |
| CS-GR-1 | Minor drafting correction. |

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For: Kendal R. Walus, P.E.
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COMMONWEALTH of VIRGINIA

DEPARTMENT OF TRANSPORTATION

1401 EAST BROAD STREET
RICHMOND, 23219-2000

David S. Ekern, P.E.
COMMISSIONER

July 11, 2008

SUBJECT: Manual of the Structure and Bridge Division
Volume V – Part 6
Cast-in-Place Concrete Slab Spans

MEMORANDUM

TO: Holders of Volume V – Part 6: Cast-in-Place Concrete Slab Spans

All of the standards in the Manual of the Structure and Bridge Division Volume V- Part 6 have been revised including the NOTES TO DESIGNER. Major revisions include updating the standards to the drafting requirements of the office practice (Manual of the Structure and Bridge Division, Volume V – Part 2, Chapter 1), changing the copyright date to 2008, and adding two blocks for signing and sealing the plans in the bottom left corner of the sheet. In order to provide space for the P.E. stamps, some details have been rearranged on the sheet. The number of drawings has been reduced by incorporating a cell library for repetitive details and the tables for computation of quantities have been moved to the NOTES TO DESIGNER.

NOTE: Standard sheets are not required to be sealed and signed at this time.

VOIDED STANDARDS:

None

NEW ISSUES:

| <u>File Number</u> | <u>Description</u> |
|--------------------|--|
| INSTR-2 and -3 | Added instructions for plan assembly. |
| INSTR-4 and -5 | Added instructions for external users for accessing MicroStation (.dgn) files and cell library (cs.cel) and for printing manual. |

Page 2
JULY 11, 2008

REVISIONS:

| <u>File Number</u> | <u>Description of change(s)</u> |
|--------------------|---|
| TOC-1 thru -6 | Added –DGN link to each standard file. Table of contents updated. |
| | Added –CEL link for cell library. |
| INSTR-1 | Falcon location changed. |

Note: Standard CS-L has been deleted and the instructions on plan assembly moved to the general instructions. Standard CS-21a widening details has been deleted at this time.

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COMMONWEALTH of VIRGINIA

DEPARTMENT OF TRANSPORTATION

1401 EAST BROAD STREET
RICHMOND, 23219-2000

PHILIP A. SHUCET
COMMISSIONER

November 1, 2004

Manual of the Structure and Bridge Division
Volume V – Part 6
Cast-in-Place Concrete Slab Spans

MEMORANDUM

TO: Holders of Volume V – Part 6 --- Cast-in-Place Concrete Slab Spans

REVISIONS:

The following sheets are revised:

- TOC This sheet was previously named "INDEX." Sheets that are intended to be 11 x 17 are marked with an asterisk (*). Note added at the bottom of the sheet to explain asterisk symbol.
- INSTR "Instructions" at top of sheet deleted. Added "GENERAL" to title at bottom of sheet.
- NOTE: The borders on all 8 ½ x 11 sheets are now ½" except for the left which is 1". The font has been changed from Universe to Arial. In some instances the NOTES TO DESIGNER may have spilled over to additional sheet(s) due to the changes in the border and font. The 8 ½ x 11 sheets have not been redistributed.

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For: George M. Clendenin, P.E.
State Structure and Bridge Engineer

Attachments



COMMONWEALTH of VIRGINIA

DEPARTMENT OF TRANSPORTATION

1401 EAST BROAD STREET
RICHMOND, 23219-2000

PHILIP A. SHUCET
COMMISSIONER

July 1, 2004

Manual of the Structure and Bridge Division
Volume V – Part 6
Cast-in-Place Concrete Slab Spans

MEMORANDUM

TO: Holders of Volume V – Part 6 --- Cast-in-Place Concrete Slab Spans

NEW ISSUE:

The Manual of the Structure and Bridge Division, Volume V – Part 6 --- Cast-in-Place Concrete Slab Spans includes standards for a complete set of plans including title sheet, estimated quantities and index of sheets, parapet/railing details, foundations are for spread footings and for pile foundations including 1 ½ : 1 and 2 : 1 fill slopes. Span lengths range from 10 to 32 feet with skew angles of 0°, 30°, and 45°.

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Attachments